

IN THE SPECIFICATION:

Page 1, please change the Title of the Application  
to:

--DISPLAY DEVICE WITH ELECTRON-EMITTING DEVICE WITH  
ELECTRON-EMITTING REGION INSULATED FROM ELECTRODES--.

Page 1, after the title, add the following:

--This is a continuation-in-part of application  
Serial No. 07/218,203, filed July 13, 1988.--

Page 4, line 5, change "functioned" to  
--functioning--;

line 17, change "a greatly" to --an  
excessively--.

Page 8, after line 8, insert the following:

Fig. 39A is a partially cutaway perspective view  
illustrating the structure of a display panel.

Figure 39B illustrates an example of the display  
device having electrodes 1 and 2 juxtaposed on a surface of a  
substrate.

Figure 39C illustrates an example of the display  
device in which electrodes 1 and 2 are laminated on a  
substrate.

Page 55, after line 4, insert the following:

The above apparatus making use of the electron-  
emitting device of the present invention will be described  
below in detail with reference to the drawings.

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With reference to Figs. 39A, 39B and 39C, an embodiment of a flat-plate image display apparatus in which the present invention is applied will be described.

Fig. 39A is a partially cutaway perspective view to show the structure of a display panel.

How to operate the present apparatus will be described below in order.

Fig. 39A shows the structure of the display panel, in which VC denotes a vacuum container made of glass, and FP, part thereof, denotes a face plate on the display surface side. At the inner face of the face plate FP, a transparent electrode made of, for example, ITO is formed. At the further inner side thereof, red, green and blue fluorescent members (image forming members) are dividedly applied in a mosaic fashion, and provided with a metal back as known in the field of CRT. ~~(The transparent electrode, the fluorescent member and the metal back are not shown in the drawing.)~~ The above transparent electrode is electrically connected to the outside of the vacuum container through a terminal EV so that an accelerating voltage can be applied.

The letter symbol S denotes a glass substrate fixed to the bottom of the above vacuum container VC, on the surface of which the electron-emitting device ED of the present invention is formed in arrangement (Figs. 39B and 39C) with number N x lines  $\ell$ . Herein, Fig. 39B shows an example wherein the devices in which electrodes 1 and 2 are

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juxtaposed on a surface of a substrate are arranged.

Further, Fig. 39C shows an example wherein the devices in which electrodes 1 and 2 are laminated on a substrate are arranged. The group of electron-emitting devices are electrically parallel-connected for each line, and positive-pole side wiring 31 (or negative-pole side wiring 32) of each line is electrically connected to the outside of the vacuum container VC through terminals  $D_{p1}$  to  $D_{pe}$  (or terminals  $D_{m1}$  to  $D_{me}$ ).

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A grid electrode (modulating electrode) GR is formed in a stripe between the substrate S and the face plate FP. The grid electrode (modulating electrode) GR is provided in the number of N, falling under right angles with the line of the electron-emitting device. Grid holes Gh are provided in each electrode, through which electrons are transmitted. The grid holes Gh may be provided one by one corresponding with each electron-emitting device as shown in Fig. 39A, or the number of minute holes may alternatively be provided in a mesh form.

The respective grid electrodes (modulating electrodes) GR are electrically connected to the outside of the vacuum container VC through grid electrode terminals  $G_1$  to  $G_N$ .

In the present display panel, the lines of the electron-emitting devices in the number of  $\ell$  and the lines of the grid electrodes (modulating electrodes) in the number of

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N constitute an XY matrix. Synchronizing with the successive driving (scanning) of the lines of electron-emitting devices line by line, modulating signals allotted to one line of an image are simultaneously applied to the lines of grid electrodes (modulating electrodes) in accordance with information signals. Thus, the irradiation with each electron beam to the fluorescent member can be controlled and the image is displayed line by line.

The image display apparatus as described above can be an image display apparatus capable of obtaining a displayed image particularly with a high resolution, free of luminance unevenness and with a high luminance, and having a facility of manufacturing a long life, because of the advantages attributable to the electron-emitting device of the present invention as previously described.--

Page 11, line 13, change "microns" to --micron--.

Page 14, line 11, change "electrode" to

--electrodes--

Page 23, line 7, change "meting" to --melting--.

Page 31, line 22, change "Vicor" to --Vycor--.

Page 85, after line 4, insert the following:

--Example 29

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✓ Using each of the electron-emitting devices preparing in the above examples, image display apparatuses as shown in Figs. 39A, 39B and 39C were prepared. Herein, a pitch of device wiring electrodes 33, wherein 33-a and 33-b

constitute a pair, is 2mm, a pitch in electron-emitting regions 30 is 2mm. Face plate (FP) was located at 4mm distance from substrate (S). Grid electrodes (GR) were located at 10  $\mu$ m distance from the surface of the electron-emitting device.

How to operate the present embodiment will be described below.

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✓ The voltage on the surface of the fluorescent member is set to be from 0.8 kV to 1.5 kV. In Figs. 39B and 30C, a voltage pulse of 14 V is applied to a pair of device wiring electrodes 33-a and 33-b so that electrons are emitted from the plural electron-emitting devices arranged in linear fashion. The electrons thus emitted are brought under ON/OFF control of electron beams in accordance with information signals by applying a voltage to the group of modulating electrodes. The electrons drawn out by the modulating electrodes impinge against the fluorescent member under acceleration. The fluorescent member performs a line of display in accordance with the information signals. Next, a voltage pulse of 14 V is applied to the adjacent device wiring electrode 33-a and 33-b to carry out a line of display as in the above. This operation is successively repeated to form a picture of image. More specifically, having the group of electron-emitting devices serve as scanning electrodes, the scanning electrodes and the modulating electrodes for the XY matrix, and thus the image is displayed.